Cumulative Reflection

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Iowa State University has provided me with ample opportunity to apply my learning outside of the classroom, through both internships and research opportunities. To me, that has been the power and most beneficial aspect of school. Iowa State didn't necessarily teach me directly how to do a future job, but it did teach me how to apply my learning in specific situations that I would encounter outside of the classroom, and for that, I am extremely grateful.

One of these first experiences came through my internship with Principal Financial Group. This was the first professional experience I ever had, and it greatly served as a pivotal point in my college years. It was in this internship that I really got an under-the-hood look at what being a computer engineer in the industry looked like. I also got a taste for the different career paths/opportunities that were available to me, and aligned my interests with these various options. At Principal, I worked on the web infrastructure team, and spent most of my summer maintaining systems, learning complex networking concepts, and automating the more mundane processes. While I greatly valued my experience at Principal, I learned that I wanted to pursue a career more on the innovative side of software engineering. I really enjoyed my time coding and writing automation scripts, so this prompted me to apply for these specific positions in subsequent jobs. Overall, I am thankful for my time at Principal, because it taught me many formal engineering processes (from an industry perspective), and shed some light on where I wanted to focus my academic studies, thus causing me to lean into more software engineering.

Another key experience came through the research opportunity I've had as an undergrad while at Iowa State. I've had the fortunate pleasure of working with Dr. Julie Rursch, a professor in the Information Assurance department, to build courses and design ways to most effectively teach undergraduates security literacy. Through our research, we have written hands-on, interactive labs that teach students foundational networking topics. We also incorporate labs that teach students how to secure said networks, and challenge them to design infrastructures that allow for stable access to services, but are secure and less susceptible to attack. Dr. Rursch cares passionately about equipping students with the tools they will need to be successful within the cyber security industry, and this is evident through her work to build cyber security into its own, independent major for incoming students. More recently, I've been assisting her in designing more classes that explore additional realms of security. We are working on a course now that places an emphasis on using industry-level security tools to exploit vulnerabilities on weaker systems. We want to expose students wireless security, web-based attacks, metasploit, etc. in the hopes that they will understand the necessity of security, and how to prevent against these attacks in production systems. The experiences I've gained through working with Dr. Rursch have been extremely valuable, and have shaped my interests towards wanting to pursue a career in cyber security consulting.

This past summer, I had a software development internship at a software company in Omaha, NE, and my experience there definitely had a significant impact on my future career decision. At Buildertrend, I worked on a summer-long project that involved building a web application from scratch. I was one of the project managers for this web application, and gained so much from this experience, primarily the ability to make important decisions at every level of the application. I really enjoyed taking a step back and viewing the project as an entire entity, knowing that one decision on the back-end would greatly influence the development of the front-end. My team examined the flow of data, potential security flaws, etc., and assessed which areas needed more development time over the others. Being with a project of this scale and complexity made for a very rewarding experience, and gave me the desire to continue this type of work into my future career. I really enjoyed the process of exploring systems from a high level, and making foundational decisions that would improve efficiencies and make everything more secure. This led me to want to combine both the application development world with the security industry, and select a career that would allow me to approach network/application infrastructures through a security lens. Again, a pretty foundational experience that has helped shaped me into the engineer I am today.

Overall, my experiences both on and off campus have had a significant impact on where I wanted to begin my career. Without each of these experiences, I would not have had this clear direction. I am so incredibly thankful for Iowa State, and the way the university has placed these opportunities in my path for me to end up in a position/career that greatly aligns with my interests and future goals. I cannot wait to see what the future has in store for me!